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EXAMINER	
AJIBADE AKONAI, OLUMIDE	
ART UNIT	**PAPER NUMBER**
2686	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/659,647	YARKOSKY, MARK	
	Examiner	Art Unit	
	Olumide T. Ajibade-Akonai	2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 3, 4, 5, 6, 7, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by **Dietz et al (20040203706)**.

Regarding **claim 1**, Dietz et al discloses in a cellular network in which a mobile station communicates with base stations through a wireless repeater (mobile telephones 10 and 20 in communication with repeaters 26 and 27, and the repeaters are connected to cell base tower 33, see fig.1, p. 2, [0017]), a method comprising: monitoring a load of the base stations (routines are provided for providing the best transmission path based on attributes such as the best signal-to-noise ratio, see p. 3, [0027]), and based on the load (signal-to-noise ratio, see p. 3, [0027]) of the base stations, the wireless repeater repeating wireless signals to one of the base (repeaters select best cell phone to cell tower path based on the signal-to-noise ratio, see fig. 4, p. 3, [0027]) stations.

Regarding **claim 2**, as applied to claim 1, Dietz et al further discloses wherein repeating wireless signals to one of the base stations comprises repeating the wireless

signals to a base station having surplus capacity (repeaters select best cell phone to cell tower path based on the signal-to-noise ratio, see fig. 4, p. 3, [0027]).

Regarding **claim 3**, as applied to claim 1, Dietz et al further discloses wherein monitoring the base stations comprises determining carrier-to-cochannel interference (signal-to-noise ratio, see p. 3, [0027]) of signals received from the base stations (routines using cellular system protocols are used to provide base tower with the best signal to noise ratio, see p. 3, [0027]).

Regarding **claim 4**, as applied to claim 3, Dietz et al further discloses wherein repeating wireless signals to one of the base stations comprises repeating the wireless signals to a base station having a high carrier-to-cochannel ratio (repeaters select best cell phone to cell tower path based on transmission attributes such as the best signal-to-noise ratio, see fig. 4, p. 3, [0027]).

Regarding **claim 5**, as applied to claim 4, Dietz et al discloses further comprising continually monitoring the load of the base stations (the repeaters are mounted in a randomly moving automobile, and a cell phone linked to repeater would have choice of path 53 to cell 47, and path 52 to cell 44, and the determination as to what path is taken is accomplished by providing protocols for selecting a cell phone to tower path from the transmission attributes, see p. 3, [0023], [0025], [0027])

Regarding **claim 6**, as applied to claim 5, Dietz et al discloses further comprising upon identifying a second base station having a higher carrier-to-cochannel ratio (repeaters select best cell phone to cell tower path based on transmission attributes such as the best signal-to-noise ratio, see fig. 4, p. 3, [0027]), performing a handoff of

the wireless signals to the second base station (cell for which signal is diminishing would handoff the cell phone to the cell for which the signal strength is increasing, and cell phone is connected to a cell base tower via an alternate path, see p. 3, [0025], p. 4, [0029]).

Regarding **claim 7**, Dietz et al discloses a method for dynamically directing a wireless repeater, the method comprising: the wireless repeater determining carrier-to-cochannel interference ratios (signal-to-noise ratio, see p. 3, [0027]) of received wireless signals (routines using cellular system protocols are used to provide base tower with the best signal to noise ratio, see p. 3, [0027]), and based on the carrier-to-cochannel interference ratios, directing the wireless repeater to radiate amplified wireless signals (cell phone signals are boosted trough the automobile repeater, see p. 3, [0020]) in a direction of a given base station (repeaters select best cell phone to cell tower path based on the best signal-to-noise ratio, see fig. 4, p. 3, [0027]).

Regarding **claim 12**, as applied to claim 7, Dietz et al further discloses wherein directing the wireless repeater to radiate amplified wireless signals in a direction of a given base station comprises directing the wireless repeater to radiate the amplified wireless signals (cell phone signals are boosted trough the automobile repeater, see p. 3, [0020]) in a direction corresponding to a strongest carrier-to-cochannel interference ratio (repeaters select best cell phone to cell tower path based on the best signal-to-noise ratio, see fig. 4, p. 3, [0027]).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 8, 16, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dietz et al (20040203706)** in view of **Song et al (20040146013)**.

Regarding **claim 8**, as applied to claim 7, Dietz et al discloses the claimed invention except further comprising receiving the wireless signals by directing an antenna to incrementally sweep its coverage area across a given area.

In the same field of endeavor, Song et al discloses further comprising receiving the wireless signals by directing an antenna to incrementally sweep its coverage area across a given area (repeater 1030 is positioned in area 1020 for extending coverage area 1020 to coverage area 1040, see fig. 10, p. 6, [0062]).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Song et al into the system of Dietz et al for the benefit of extending the coverage area in a wireless communication system.

Regarding **claim 16**, Dietz et al discloses In a wireless repeater operable to radiate in a number of directions so as to provide a number of coverage areas, a method comprising: determining characteristics of the wireless signals, and based on the characteristics (routines are provided for providing the best transmission path based on attributes such as the best signal-to-noise ratio, see p. 3, [0027]), directing the wireless repeater to radiate amplified wireless signals to one of the number of coverage

areas (repeaters select best cell phone to cell tower path based on the signal-to-noise ratio, see fig. 4, p. 3, [0027]).

Dietz et al fails to disclose incrementally adjusting the wireless repeater to receive wireless signals within the number of coverage areas.

In the same field of endeavor, Song et al discloses incrementally adjusting the wireless repeater to receive wireless signals within the number of coverage areas (repeater 1030 is positioned in area 1020 for extending coverage area 1020 to coverage area 1040, see fig. 10, p. 6, [0062]).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Song et al into the system of Dietz et al for the benefit of extending the coverage area in a wireless communication system.

Regarding **claim 18**, as applied to claim 16, the combination of Dietz et al and Song et al disclose the claimed invention except wherein incrementally adjusting the wireless repeater comprises rotating a directional antenna to sweep its coverage area over the number of coverage areas.

Song et al, however, discloses wherein incrementally adjusting the wireless repeater comprises rotating a directional antenna to sweep its coverage area over the number of coverage areas (repeater 1030 comprises two directional antennas pointing towards access point and station 1050 in coverage area 1040, the repeater extending coverage area 1020 into coverage area 1040, see p. 6, [0062]).

It would therefore have been obvious to one of ordinary skill in the art to further modify the combination of Dietz et al and Song et al for the benefit of extending the coverage area in a wireless communication system.

Regarding **claim 19**, as applied to claim 16, the combination of Dietz et al and Song et al disclose the claimed invention.

Dietz et al fails to disclose wherein the wireless repeater includes a plurality of antennas each operable to receive wireless signals from a given coverage area, and wherein incrementally adjusting the wireless repeater comprises selecting antennas from the plurality of antennas to receive the wireless signals.

Song et al, however, discloses wherein the wireless repeater includes a plurality of antennas (repeater 1030 includes two directional antennas, see fig. 10, p. 6, [0062]) each operable to receive wireless signals from a given coverage area (repeater 1030 with two directional antennas pointing at the access point and station 1050, see frig. 10, p. 6, [0062]), and wherein incrementally adjusting the wireless repeater comprises selecting antennas from the plurality of antennas to receive the wireless signals (repeater 130 receives up-link data from station 1050 via a first directional antenna, see p. 7, [0062]).

It would therefore have been obvious to one of ordinary skill in the art to further modify the combination of Dietz et al and Song et al for the benefit of extending the coverage area in a wireless communication system.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Dietz et al (20040203706)** in view of **Lehmusto et al (5,907,794)**.

Regarding **claim 10**, as applied to claim 7, Dietz et al discloses the claimed invention except further comprising for each of the received wireless signals, storing in data storage a coverage area identifier corresponding to a coverage area from which the wireless signals were received.

In the same field of endeavor, Lehmusto et al discloses further comprising for each of the received wireless signals, storing in data storage (database maintained at the repeater, see col. 3, lines 24-32) a coverage area identifier subscriber stations corresponding to a coverage area from which the wireless signals were received (identifiers of the subscriber stations which operate on mode channels within the coverage area of the repeater are stored in the database, see col. 3, lines 24-32).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Lehmusto et al into the system of Dietz et al for the benefit of maintaining the information of subscribers in the coverage area in the repeater station.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Dietz et al (20040203706)** in view of **Jami et al (20030220109)**.

Regarding **claim 13**, as applied to claim 7, Dietz et al discloses the claimed invention except wherein the given base station is a base station that carries a least amount of traffic at a given point in time.

In the same field of endeavor, Jami et al discloses wherein the given base station is a base station (base station cell, see p. 3, [0044]) that carries a least amount of traffic at a given point in time (base station cell with the lowest traffic load on its DSCH is chosen to reduce congestion, see p. 3, [0044]).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Jami et al into the system of Dietz et al for the benefit of reducing congestion on shared channels.

7. Claims 11, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dietz et al (20040203706)** in view of **Kuwahara et al (20030162550)**.

Regarding **claim 11**, as applied to claim 7, Dietz et al discloses the claimed invention except further comprising determining a PN-offset of each received wireless signal.

In the same field of endeavor, Kuwahara et al discloses further comprising determining a PN-offset of each received wireless signal (base station **0** is a repeater that transmits pilot signals to the mobile terminal with a predetermined pilot PN offset, see p. 6, [0068]-[0069]).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Kuwahara et al into the system of Dietz et al for the benefit of providing a means for a wireless communications terminal to detect repeaters.

Regarding **claim 14**, as applied to claim 7, Dietz et al discloses the claimed invention except further comprising radiating the amplified signals in a direction of a given sector of the given base station.

In the same field of endeavor, Kuwahara et al discloses further comprising radiating the amplified signals in a direction of a given sector of the given base station (the repeater repeats signals in one sector of a base station, see p. 6, [0065]-[0066]).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Kuwahara into the system of Dietz et al for the benefit of determining whether a repeater or base station from which the terminal receives signals by observing the number of sectors it receives.

Regarding **claim 15**, as applied to claim 14, the combination of Dietz et al and Kuwahara et al disclose the claimed invention.

Dietz et al fails to disclose further comprising only repeating signals having a PN-offset of the given sector.

In the same field of endeavor, Kuwahara et al discloses further comprising only repeating signals having a PN-offset of the given sector (if base station transmitting PN offset signals is the one from which the terminal received the sync channel, and the terminal can observe only the sector of the channel, then the transmitting station is a repeater, see p. 5-6, [0061]-[0062]).

It would therefore have been obvious to one of ordinary skill in the art to further modify the combination of Dietz et al and Kuwahara et al for the benefit of detecting a signal from a repeater.

8. Claims 9 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dietz et al (20040203706)** in view of **Chen et al (6,782,277)**.

Regarding **claim 9**, as applied to claim 7, Dietz et al discloses the claimed invention except further comprising incrementally receiving the wireless signals from a plurality of directional antennas, where each directional antenna is operable to receive wireless signals from a given coverage area.

In the same field of endeavor, Chen et al teaches further comprising incrementally receiving the wireless signals from a plurality of directional antennas (base station 102 with directional antenna 104 receives signals from subscriber stations 108a and 108b as signal beam 110 sweeps from sector 112a to sector 112b, see figs. 1 and 6, col. 5, lines 64-67, col. 6, lines 1-16), where each directional antenna (antenna 620, see fig. 6, col. 17, lines 21-25) is operable to receive wireless signals from a given coverage area (active subscribers in the coverage area receive signals from the directional antenna of the bas station, see col. 6, lines 5-7).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Chen et al into the system of Dietz et al for the benefit of preventing interference to subscriber stations neighboring cells.

Regarding **claim 17**, as applied to claim 1, Dietz et al discloses the claimed invention except wherein incrementally adjusting the wireless repeater comprises directing a phased array antenna to sweep its coverage area over the number of coverage areas.

In the same field of endeavor, Chen et al discloses wherein incrementally adjusting the wireless repeater comprises directing a phased array antenna (signal beam shaping means 330 comprises a plurality of phase shifters 310 connected to an antenna 312, see fig. 3A, col. 11, lines 37-43) to sweep its coverage area over the number of coverage areas.

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Chen et al into the system of Dietz et al for the benefit of providing an improved-capacity wireless system.

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Dietz et al (20040203706)** in view of **Song et al (20040146013)** as applied to claim 16 above, and further in view of **Lehmusto et al (5,907,794)**.

Regarding **claim 20**, as applied to claim 16, the combination of Dietz et al and Song et al disclose the claimed invention except further comprising for each of the wireless signals, storing in data storage a coverage area identifier corresponding to a coverage area from which the wireless signals were received.

In the same field of endeavor, Lehmusto et al discloses further comprising for each of the wireless signals (direct mode channels, see col. 3, lines 24-28), storing in data storage (database maintained at the repeater, see col. 3, lines 24-32) a coverage area identifier corresponding to a coverage area from which the wireless signals were received (identifiers of the subscriber stations which operate on mode channels within the coverage area of the repeater are stored in the database, see col. 3, lines 24-32).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Lehmusto into the system of Dietz et al and Song et al for the benefit of controlling a subscriber station operating on a direct mode channel in a radio system.

10. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Tamaki et al (20030124976)** in view of **Lehmusto et al (5,907,794)** and **Dietz et al (20040203706)**.

Regarding **claim 23**, Tamaki et al discloses a wireless repeater (repeater station 407a see fig. 15, p. 9, [0105]) comprising: a donor antenna that is operable to communicate with a plurality of base stations (antenna 1501 for transmitting and receiving a radio signal in a radio area, the radio signal been transmitted from a base station 406which can transmit radio signals, see figs. 15 and 17, p. 9 [0104]), p. 10 [0114]), a mobile station modem (modem part 1506, see fig. 15, [0104]) that receives wireless signals from the donor antenna and identifies characteristics of the wireless signals (modem part 1506 comprises received signal level measurement part 1513, and part 1513 measures reception power of a base station pilot signal, see p. 9, [0105], [0109]),

Tamaki et al fails to disclose a processor operable to record in data storage the characteristics of the wireless signals and based on the characteristics, to direct the donor antenna to radiate amplified wireless signals to a given base station.

In the same field of endeavor, Lehmusto et al discloses a processor (control means 405, see fig. 4, col. 7, lines 47) operable to record in data storage (database maintained at the repeater of the radio system, see col. 3, lines 24-25) the characteristics of the wireless signals (identifiers of the subscriber stations which operate on mode channels within the coverage area of the repeater are stored in the database, see col. 3, lines 24-32).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Lehmusto into the system of Tamaki et al for the benefit of controlling a subscriber station operating on a direct mode channel in a radio system.

The combination of Tamaki et al and Lehmusto et al fail to disclose based on the characteristics, to direct the donor antenna to radiate amplified wireless signals to a given base station.

In the same field of endeavor, Dietz et al discloses based on the characteristics (signal-to-noise ratio, see p. 3, [0027]), to direct the donor antenna (repeater with transmission antennae 24 and 25, see fig. 1, p. 2, [0017]) to radiate amplified wireless signals (cell phone signals are boosted trough the automobile repeater, see p. 3, [0020]) to a given base station (repeaters select best cell phone to cell tower path based on the signal-to-noise ratio, see fig. 4, p. 3, [0027]).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Dietz et al into the system of Tamaki et al and Lehmusto et al for the benefit of establishing communication between a wireless telephone and a repeater unit.

11. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dietz et al (20040203706)** in view of **Song et al (20040146013)** and **Lehmusto et al (5,907,794)** as applied to claim 21 above, and further in view of **Kuwahara et al (20030162550)**.

Regarding **claim 21**, as applied to claim 20, the combination of Dietz et al,

Lehmusto et al, and Kuwahara et al discloses the claimed invention except wherein determining characteristics of the wireless signals comprises determining characteristics selected from the group consisting of a PN-offset of each wireless signal and a signal-to-noise ratio for each PN-offset.

In the same field of endeavor Kuwahara et al discloses wherein determining characteristics of the wireless signals comprises determining characteristics selected from the group consisting of a PN-offset of each wireless signal (base station **0** is a repeater that transmits pilot signals to the mobile terminal with a predetermined pilot PN offset, see p. 6, [0068]-[0069]) and a signal-to-noise ratio for each PN-offset.

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Kuwahara et al into the system of Dietz et al, Song et al, and Lehmusto et al for the benefit of providing a means for a wireless communications terminal to detect repeaters.

Regarding **claim 22**, as applied to claim 21, Dietz et al further discloses wherein directing the wireless repeater comprises directing the wireless repeater to radiate the amplified wireless (cell phone signals are boosted trough the automobile repeater, see p. 3, [0020]) signals to a given coverage area having a coverage area identifier corresponding to a coverage area having the highest signal-to-noise ratio (repeaters select best cell phone to cell tower path based on the best signal-to-noise ratio, see fig. 4, p. 3, [0027]).

12. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Tamaki et al (20030124976)** in view of **Lehmusto et al (5,907,794)** and **Dietz et al**

(20040203706) as applied to claim 23 above, and further in view of **Kuwahara et al (20030162550)**.

Regarding **claim 24**, as applied to claim 23, the combination of Tamaki et al, Lehmusto et al and Dietz et al disclose the claimed invention except wherein the characteristics are selected from the group consisting of PN-offsets of the wireless signals and signal to noise ratios Ec/1o for each PN offset.

In the same field of endeavor, Kuwahara et al discloses wherein the characteristics are selected from the group consisting of PN-offsets of the wireless signals (base station **0** is a repeater that transmits pilot signals to the mobile terminal with a predetermined pilot PN offset, see p. 6, [0068]-[0069]) and signal to noise ratios Ec/1o for each PN offset.

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Kuwahara et al into the system of Tamaki et al, Lehmusto et al, and Dietz et al for the benefit of providing a means for a wireless communications terminal to detect repeaters.

13. Claims 25 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Tamaki et al (20030124976)** in view of **Lehmusto et al (5,907,794)** and **Dietz et al (20040203706)** as applied to claim 23 above, and further in view of **Chen et al (6,782,277)**.

Regarding **claim 25**, as applied to claim 23, the combination of Tamaki et al,

Lehmusto et al and Dietz et al disclose the claimed invention except wherein the processor causes the donor antenna to sweep over coverage areas of the plurality of the stations through increments.

In the same field of endeavor, Chen et al discloses wherein the processor (control processor 316, see fig. 3a, col. 11, lines 44-52) causes the donor antenna (mechanically steered directional antennas, see fig. 1a, col. 4, lines 14-21) to sweep over coverage areas of the plurality of the stations through increments (by applying a cyclic pattern to the stations coverage area, the signal beam passes through the base stations coverage area, see col. 4, lines 25-33).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Chen et al into the system of Tamaki et al, Lehmusto et al, and Dietz et al for the benefit of providing an improved-capacity wireless system.

Regarding **claim 30**, as applied to claim 23, the combination of Tamaki et al, Lehmusto et al and Dietz et al disclose the claimed invention except wherein the donor antenna is an antenna selected from the group consisting of an omni-directional antenna, a directional antenna, and a phased array antenna.

In the same field of endeavor, Chen et al further discloses wherein the donor antenna is an antenna selected from the group consisting of an omni-directional antenna, a directional antenna, and a phased array antenna (base station signal beams are created using mechanically steered directional antennas, see fig. 1a, col. 4, lines 14-21).

It would therefore have been obvious to one of ordinary skill in the art to

further modify the combination of Tamaki et al, Lehmusto et al, Dietz et al and Chen et al for the benefit of providing an improved-capacity wireless system.

14. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Tamaki et al (20030124976)** in view of **Lehmusto et al (5,907,794)** and **Dietz et al (20040203706)** and **Chen et al (6,782,277)** as applied to claim 25 above, and further in view of **Kita (5,534,872)**.

Regarding **claim 26**, as applied to claim 25, the combination of Tamaki et al, Lehmusto et al, Dietz et al, and Chen et al discloses the claimed invention except wherein at each increment, the donor antenna receives wireless signals and passes the wireless signals to the processor which records in the data storage the increment at which each wireless signal was received.

Kita, however, teaches wherein at each increment (distance measurement in correspondence with every ten degrees with respect to one rotation angle, see col. 4, lines 64-67), the donor antenna (antenna 1, see fig. 1, col. 3, line 57) receives wireless signals (electromagnetic waves received by antenna 1 when the antenna has been rotated by an angle, see col. 5, lines 34-42) and passes the wireless signals to the processor which records in the data storage (memory circuit 16, see fig. 1, col. 4, line 56) the increment at which each wireless signal was received (angle data is stored in memory circuit 16, and the angle data is derived from the rotation of the antenna to receive radio signals reflected from a target, see abstract, col. 4, lines 4-11 and lines 58-63).

It would therefore have been obvious to one of ordinary skill in the art to

combine the teaching of Kita into the system of Tamaki et al, Lehmusto et al, Dietz et al, and Chen et al for the benefit of measuring the distance for transmitting a radio signal every time the antenna is rotated by a rotation angle.

15. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Tamaki et al (20030124976)** in view of **Lehmusto et al (5,907,794)** and **Dietz et al (20040203706)** as applied to claim 23 above, and further in view of **Chen et al (6,782,277)** and **Kita (5,534,872)**.

Regarding **claim 31**, as applied to claim 23, the combination of Tamaki et al, Lehmusto et al, and Dietz et al disclose the claimed invention.

Tamaki et al and Lehmusto et al fail to disclose based on the characteristics of the wireless signals directing the phased array antenna to radiate the amplified wireless signals at a given phase.

Dietz et al, however, teaches based on the characteristics (signal-to-noise ratio, see p. 3, [0027]) of the wireless signals directing the phased array antenna to radiate the amplified wireless signals at a given phase (repeaters select best cell phone to cell tower path based on the signal-to-noise ratio, see fig. 4, p. 3, [0027]).

It would therefore have been obvious to one of ordinary skill in the art to further modify the combination of Tamaki et al, Lehmusto et al and Dietz et al for the benefit of establishing communication between a wireless telephone and a repeater unit.

The combination of Tamaki et al, Lehmusto et al, and Dietz et al fails to discloses wherein the donor antenna is a phased array antenna.

In the same field of endeavor, Chen et al, teaches wherein the donor antenna is a phased array antenna (signal beam shaping means 330 comprises a plurality of phase shifters 310 connected to an antenna 312, see fig. 3A, col. 11, lines 37-43).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Chen et al into the system of Tamaki et al, Lehmusto et al, and Dietz et al for the benefit of providing an improved-capacity wireless system.

The combination of Tamaki et al, Lehmusto et al, Dietz et al, and Chen et al fails to disclose wherein the processor records the phase of the phased array antenna at which each wireless signal is received.

Kita, however, teaches wherein the processor (memory address control circuit 6, see fig. 1, col. 4, lines 10-12) records the phase of the phased array antenna at which each wireless signal is received (angle data is stored in memory circuit 16, and the angle data is derived from the rotation of the antenna to receive radio signals reflected from a target, see abstract, col. 4, lines 4-11 and lines 58-63).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Kita into the system of Tamaki et al, Lehmusto et al, Dietz et al, and Chen et al for the benefit of measuring the distance for transmitting a radio signal every time the antenna is rotated by a rotation angle.

16. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Tamaki et al (20030124976)** in view of **Lehmusto et al (5,907,794)** and **Dietz et al (20040203706)** and **Chen et al (6,782,277)** and **Kita (5,534,872)** as applied to claim 26 above, and further in view of **Wang et al (6,799024)**.

Regarding **claim 27**, as applied to claim 26, the combination of Tamaki et al, Lehmusto et al, Dietz et al, Chen et al, and Kita et al disclose the claimed invention except wherein the mobile station modem is a rake receiver that identifies the PN-offset in the wireless signals.

In the same field of endeavor, Wang et al teaches wherein the mobile station modem is a rake receiver (RAKE receiver, see col. 4, line 41) that identifies the PN-offset in the wireless signals (information bearing signal comprises a spreading code with a pseudo-random noise sequence that is identifiable by a rake receiver, see col. 4, lines 33-42).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Wang et al into the system of Tamaki et al, Lehmusto et al, Dietz et al, Chen et al, and Kita et al for the benefit of demodulating coded signals from the mobile station.

17. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Tamaki et al (20030124976)** in view of **Lehmusto et al (5,907,794)** and **Dietz et al (20040203706)** and **Chen et al (6,782,277)** and **Kita (5,534,872)** and **Wang et al (6,799024)** as applied to claim 27 above, and further in view of **Tak et al (6,567,460)**.

Regarding **claim 28**, as applied to claim 27, the combination of Tamaki et al, Lehmusto et al, Dietz et al, Chen et al, Kita, and Wang et al disclose the claimed invention except wherein the processor records in the data storage the PN offsets and the signal to noise ratios of the wireless signals at each increment.

In the same field of endeavor, Tak et al teaches wherein the processor (controlling part 260, see fig. 2, col. 5, line 23) records in the data storage (storage area, see col. 5, line 28) the PN offsets (pilot PN offset, see col. 5, lines 33-35) and the signal to noise ratios of the wireless signals at each increment (database stores the PN offset and power information, see col. 5, lines 25-29).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Tak et al into the system of Tamaki et al, Lehmusto et al, Dietz et al, Chen at el, Kita, and Wang et al for the benefit of detecting the pilot PN offsets in a cordless telephone system.

Regarding **claim 29**, as applied to claim 28, the combination of Tamaki et al, Lehmusto et al, Dietz et al, Chen et al, Kita, Wang et al, and Tak et al disclose the claimed invention.

Tamaki et al, Lehmusto et al, Chen et al, Kita, Wang et al, and Tak et al

fail to disclose wherein the processor instructs the donor antenna to radiate the amplified wireless signals to a base station that corresponds to an increment where the mobile station modem detected a highest signal-to-noise ratio.

Dietz et al, however, inherently teaches wherein the processor instructs the donor antenna (repeater 36 with transmission antennae 24 and 25 seek to be connected to a base tower, see fig. 1, p. 2, [0017]) to radiate the amplified wireless signals to a base station (the automobile repeaters boost cell phone signals, and transmits the signal to a base station, see p. 3, [0020], [0027]) that corresponds to an increment where the mobile station modem detected a highest signal-to-noise ratio (repeaters select best cell phone to cell tower path based on the best signal-to-noise ratio, see fig. 4, p. 3, [0027]).

It would therefore have been obvious to one of ordinary skill in the art to further modify the combination of Tamaki et al, Lehmusto et al, Dietz et al, Chen et al, Kita, Wang et al, and Tak et al for the benefit of establishing communication between a wireless telephone and a repeater unit.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cook et al (6,005,884) discloses a distributed architecture for a wireless data communications system.

Morimoto (6,778,809) discloses a mobile network for remote service areas using mobile stations.

Farley et al (6,816,732) discloses an optimal load-based wireless session context transfer.

Han et al (20030143948 discloses an apparatus for detecting base station direction in RF repeater.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olumide T. Ajibade-Akonai whose telephone number is 571-272-6496. The examiner can normally be reached on M-F, 8.30p-5p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on 571-272-7905. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

OA

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